

Line-coincidence radiative photopumping in laboratory and astrophysical plasmas

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In this talk we will discuss line-coincidence radiative photopumping in plasmas. This is the mechanism whereby line radiation in species *a* pumps line absorption in another species *b* thereby producing enhanced fluorescence or even population inversion and gain on other transitions in species *b*. The history of theoretical and experimental work will be reviewed. The possibility that line-coincidence photopumping takes place in astrophysical plasmas will be discussed. Although enhanced fluorescence in the optical region driven by line-coincidence photopumping has been known for many years (the Bowen resonance fluorescence process), evidence for enhanced fluorescence in the XUV region will be presented. Possible laboratory experiments to investigate the process will also be discussed.